CHRYSAMPHORA CALIFORNICA

by J. A. Mazrimas

This monotypic carnivorous plant of the family Sarraceniaceae can be found growing in wet habitats from the Sierran mountains (Nevada county Cal.) through the northwest into Oregon's Lane county. In certain locations, the plants grew so extensively, that several old townships were named after the genus, Darlingtonia, which are merely place names today in both California and Oregon. Chrysamphora can be seen growing on shallow sloping hummocks in wet sphagnum moss and in sandy soil around lake shores at 600-6500 ft. elevation usually facing the northeast sun. Winter rainfall usually amounts to 40-60 inches annually but the dependable water supply during the dry summer is the cold running spring water which runs over sterile sand or volcanic silt. Temperatures in the high elevations can plunge quite low during winter nights frequently with negative Farenheit values. Summer temperatures can reach 100 degrees F. occasionally but usually are in the eighties and low nineties. The soil seems to be loose and gravely containing large amounts of organic debris such as decayed fir and pine needles. Large granite and serpentine rocks can be found interspersed throughout the black sandy soil. Frequently, one can find the Western Azealea (Rhododendron occidentale) associated with growing mats of the carnivorous plants.

Chrysamphora is a sparsely-rooted plant with thick pinkish to white roots emerging from the growing end of the long rhizome. The tubular pitchers which grow upward with a half-twist have a height of 15 to 40 inches and fang-like projections from the hood of the leaf accounts for the other common name "cobra lily". On this fish-tail-shaped appendage near the pitcher opening are found nectar glands which produce a liquid which attracts insects. Insects then eventually enter the opening and either slip down into the pitcher bottom or attempt to fly upward into the translucent spots along the top of the pitcher hood. Either way, the insect falls to the bottom prevented from climbing out by the downward pointing hairs along the inside walls.

Between April and June, solitary red-petalled flowers are borne on scapes that rise about a foot above the pitchers. It is an overwhelming sight to view an entire acre or two of flowering plants modding their stalks in the breeze. If the flowers are cross-fertilized, the enlarged cone-shaped seed capsule is ready to split open in August or September releasing hundreds of the light brown hairy seeds to the wind.

In cultivation, Chrysamphora can best be grown in large pots filled with sphagnum moss sitting in a saucer of water. A sphagnum peat and perlite mix would also work satisfactorily. Plants should be grown in a cool, airy and light shady atmosphere. I would recommend a 60° to 65° F. temperature during the day and 5° to 10° F. lower at night. Water the pots daily including sprinkling the pitchers. In the field, the most vigorous growing plants can be found in the coolest water-soaked soil in a partly sunny area. Most of the season's pitchers are formed in the spring following the flowers. Plants that are grown around the cool, coastal cities of San Francisco, California and Sidney, Australia grow and flower very well. The cool ocean breeze helps to temper the summer temperature in these areas allowing the plants to do their best. In the field, of course, the temperature is controlled by the spring waters that are quite cold as they emerge from underground reservoirs. At some distance from the water source, the plant colonies gradually fade out as the sun heats the shallow streams percolating down the meadow slopes. Seasonally, about two to four short, narrow rhizomes grow outward from the main rhizome terminating in new plants with their own roots. This vegetative propagation results in clonal clumps surrounding the mother plant and becomes the principal method by which this carnivorous plant spreads throughout the bog.

Ripe seeds should be soaked in water for one week changing the water daily. Most of them sink to the bottom after this time. They can be sprinkled on the surface of pure sphagnum moss or peat moss and covered with polyethylene or glass until germination begins. The rate of germination depends on how much time has elapsed when seeds were harvested. Fresh seed germinates quite rapidly while older seed seems to germinate after a long wait of several months or more. It is good practice to germinate the seeds in a cool area (below 60 degrees F.). A flowering plant can be obtained from seed in about 4-5 years.

Chrysamphora is reported to have a somatic chromosome number of 30 while the genus Sarracenia has 26. Many attempts to make an intergenerie cross resulted in failure. The other member of this family is Heliamphora whose karyotype is not known. It would be interesting to know its chromosome number because of the evolutionary implications that may result.

A recent newspaper reported that an area around Gasquet, California received a rainfall of 14 inches in 48 hours! This area is rich in Chrysamphora and I am certain that the plants survived the storm and relished the abundance of water that had fallen on them. With the spring reservoirs full, I look forward to a new season of many tall, healthy pitchers swaying in the breeze.

RECENT LITERATURE

Benolken, R. M., Jacobson, B. L.: Response Properties of a Sensory Hair Excised from Venus's Flytrap, J. Gen. Physiol., 56: 64-82, 1970

Multicellular sensory hairs excised from Dionzez leaves were subjected to a destructive dissection technique, disclosing a sensory layer of a radial symmetrical rosette of 20-30 apparently identical cells organized in a plane normal to the long axis of the hair. Intracellular glass electrode probing disclosed a resting membrane potential of about -80 mv. Response to a mechanical stimulus consisted of a graded response and an action potential, the latter similar to that which propagates over the leaf surface. The upper and lower membranes of a single sensory cell are electrically symmetrical in the absence of stimulation, and become asymmetrical with stimulus. Limiting values for the response symmetry were calculated on the hypothesis of an electrical model consistent with the histology of the sensory cells.

Bernob, G.: Paper wasp nest in pitcher plant, Sarracenia purpurea L. Entomol. News Vol 80 (6), p 148 1969

On August 1, 1968, a living pitcher-plant leaf was found to contain an active nest of the common paper wasp. The observation was made at a typical bog habitat near Ashburrham, Mass.

Burgess, L., Rempell, J.: Collection of the pitcherplant mosquito, Wyeomyia smithii from Saskatchewan. Can. Entomol. Vol 103 pp 886-887 1971

Larvae of the above mosquito were collected from pitcher-plants Sarracenia purpurea in swamps near Nipawin, Little Sandy Lake, and Waskesiu. Pupae and adults also were collected at Nipawin.